

CLAIMS

1. In a portable optical reader system,

- (a) a hand-held optical reader unit having an optical system for focusing at an interior region of the unit an optical image of information comprising discernible indicia disposed within a predetermined area of information external of the reader unit;
- (b) an area array of photosensor elements disposed at said interior region of said unit where the optical image of information is to be focused for receiving the optical image of information from the predetermined area;
- (c) a decoder remote from said hand-held optical reader unit for decoding discernible indicia disposed within optical image of information from said predetermined area; and
- (c) a communication link between said hand-held optical reader and said decoder for communicating optical image information received by said area array of photosensor elements.

15 2. The portable optical reader system of claim 1, further comprising: a marker source disposed adjacent the optical reader unit for projecting marker onto a surface region exterior of the predetermined area so as to delineate the predetermined area and the information contained therein.

20 3. The portable optical reader system of claim 1, further comprising: a light source for illuminating the exterior region exterior of the hand-held optical reader unit and including the predetermined area of information, such that a complete image of the information within the predetermined area is focused onto said area array of photosensor elements.

25 4. The portable optical reader system of claim 3, wherein said light source is a flashable light source.

5. The portable optical reader system of claim 4, wherein said hand-held optical reader unit having a longitudinal optical axis, and said flashable light source means including an illuminator disposed in a ring configuration about said longitudinal optical axis.

6. The portable optical reader system of claim 5, said flashable illuminator being

in the form of a ring-type xenon flash tube.

7. The portable optical reader system of claim 1, said optical system comprising at least one lens having a longitudinal optical axis and having circular symmetry relative to said axis, and said predetermined area of information having a predetermined height and width, said area array of photosensor elements being of height and width and said marker source being at least two light sources.

8. The portable optical reader system of claim 7, wherein said marker beams are projected through said at least one lens, such that said marker delineate said predetermined area of information, said optical image of information read from the predetermined area is focusable on said area array of photosensor elements to be read by said reader unit independently, of angular orientation of said predetermined area about said optical axis with respect to the reader unit.

9. The portable optical reader system of claim 8, said marker source being four light sources, each source comprising means for linearly shaping said marker beams in two directions away from optical central marker beam axes along which the marker beams generally extend.

10. The portable optical reader system of claim 8, said four light sources being disposed at respective four corners of said area array of photosensor elements, said two directions being at right angles with respect to each other, each of said marker beams upon being projected upon said surface region delineating one of the corners of said predetermined area.

11. The portable optical reader system of claim 8, each of said four light sources being disposed centered on and adjacent a respective one of the edges of said array of photosensor elements, said two directions being mutually opposite directions, each of said marker beams upon being projected upon said surface region delineating one of four edges of said predetermined area.

12. The portable optical reader system of claim 2, said hand-held optical reader unit having a longitudinal optical axis, said flashable light source including a plurality of discrete flashable light sources disposed in an annular arrangement about field of view of

the optics in a plane perpendicular to said optical axis.

13. The portable optical reader system of claim 2, said mark or source being a plurality of light sources, disposed externally of the optics of the reader unit and directed peripherally along a field of view of the reader unit thereby bracketing upon being projected onto said surface region said predetermined area.

14. A portable optical reader system comprising: a hand-held optical reader unit including an area array of photosensor elements disposed interior of the reader unit, means for focusing an image of an area of information on the area array of photosensor elements, the area of information being disposed externally of the reader unit on a surface and within a field of view of the focusing means; and means disposed adjacent the optical reader unit for projecting marker beams away from the reader unit and substantially along the periphery of the field of view of the focusing means to impinge upon visually discernible indicia for delineating an area disposed within the field of view of the focusing means, such that when the reader unit is oriented to locate the information within the delineated area, the image of the information is focusable on said area array of photosensor elements.

15. A portable optical reader system according to claim 14, wherein the reader unit further includes a flashable light source means for essentially instantaneously illuminating the delineated area within the field of view, such that the image becomes focused on said area array of photosensor elements upon illumination of the delineated area.

16. A portable optical reader system according to claim 15, wherein the visually discernible indicia are marker spots delineating at least two diametrically opposed corners of the area within the field of view of the optical means.

17. A portable optical reader system according to claim 14, wherein the visually discernible indicia are marker spots delineating a rectangular area as the area within the field of view of the optical means.

18. A portable optical reader system according to claim 14, wherein the means for projecting marker beams is disposed in a focal plane such that an area of information to be read is focused on said imaging array by the optical means when the area of information to be read is bracketed by the marker beams.

19. A method of reading optical indicia, comprising:

- (a) focusing the image of optical indicia to be read on an area array of photosensor elements housed within a hand-held reader;
- (b) imaging said focused optical indicia with said area array of photosensor elements and converting said focused image of said optical indicia into an indicia signal;
- (c) communicating said indicia signal from said hand-held reader via electromagnetic radiation to an indicia decoder remote from said hand-held reader; and
- (d) decoding said indicia signal.

20. The method of reading optical indicia of claim 21, first comprising delineating

a focusable area where an optical indicia to be read is located.